ELECTRONICS AND COMMUNICATIONS IN JAPAN

Part 1: Communications

VOLUME 73

CONTENTS FOR 1990

NUMBER 1

Page

Naoki Kobayashi and Minoru Kanzaki: Design of a Hand-Held Image Reader 1
Masatoshi Umeda, Masashi Murata, and Norihiko Morinaga: Maximum-Likelihood Decoding Performance for Quadrature Vestigial Sideband Data Transmission 12
Kenichi Mori and Yasuhiko Yasuda: A Method of Constructing Broadband Multilane Ring Networks by Autonomous Distributed Switching 22
Jun-ichi Mizusawa, Norio Kumahara, and Shigeo Suzuki: IC Card-Based Advanced Man-Machine Interface for Public Switched Telephone Network Services 36
Yoshio Itoh, Masaki Kobayashi, Etsuro Hayahara, and Masayuki Hatta: An Analysis of the Echo Canceller Using a System of Orthogonal Functions 55
Taihei Suzuki, Yukihito Maejima, Shirou Tanabe, Hirotoshi Shirasu, and Toukou Ohtsubo: A Diagrammatic Design Method for Switching Software Based on Data-Driven Execution 64
Shigeru Kozono and Akira Taguchi: Propagation Characteristics of Low Base-Station Antenna on Urban Roads 75
Hajime Seki and Yoshiyuki Naito: Universal Characteristic Charts for Ferrite EM Absorbers 86
Yoshio Karasawa, Takashi Matsudo, and Takayasu Shiokawa: Wave Height and Frequency Dependence of Multipath Fading due to Sea Reflection in Maritime Satellite Communications 95
Hiroshi Ogawa, Matsuo Sekine, and Toshimitsu Musha: Suppression of Sea Ice Clutter and Detection of Targets Using an X-Band Radar 107

NUMBER 2

Satoshi Ishibashi: Coding Parameter Optimization for the Block Truncation Coding of Still Pictures 1
Takahiro Saito, Takashi Komatsu, and Hiroshi Harashima: Improvement on Singular Value Decomposition Vector Quantization 11
Shoji Kondo, Masaaki Hattori, and Hideki Akiyama: Significant Digit Requirement for the FM Demodulation Using Digital Signal Processing 21
Noriyuki Ikeuchi: Network Constructing Algorithm Based on Link Significance Evaluation—NABLE 30
Kazuhiko Yamaguchi, Toshio Tokita, and Hideki Imai: A Soft Decision Viterbi Decoding Method Using Received Carrier Level in Fading Channel 42
Yoshinori Sakai: Burst Multiplexing Method of Multimedia Signals by Communication Terminal 53
Yoshitsugu Ohmae and Mitsuko Fukuda: Loss Probability Characteristics of Two-Dimensional Traffic 64
Shin-ichi Nara: Star Wiring Network for Premises 75

Page

Teruji Shiroshita and Masayuki Nomura: Evaluations on the Common Applicaton Protocols in OSI 85
Seiichi Sampei: Rayleigh Fading Compensation Method for 16QAM MODEM in Digital Land Mobile Radio Systems 99

NUMBER 3

Tsutomu Takeuchi, Fumio Ikegami, and Susumu Yoshida: Experimental Studies on Fading Reduction by Four-Direction Antenna Pattern Diversity Reception with Variable Multithreshold Switching Strategy 1
Tetsuo Ideguchi, Yuuji Koui, Mitsuru Tsuchida, Yukio Ushisako, and Michihiro Ishizaka: Design and Implementation of Protocol Conversion Equipment for Layered Protocols 14
Fumiaki Sato, Jun Munemori, Tadanori Mizuno, and Tetsuo Ideguchi: Test Sequence Generation Method for Systems-Based Finite Automata—Single Transition Checking Method Using W Set 24
Shoji Kondo and Hikaru Date: Simulation of an Echo Distortion Automatic Canceller in an FM Broadcasting Receiver 38
Mikio Yamasaki and Naoki Murakami: Circuit Simulation Analysis of Power Dissipation in the Main Switch of a Forward Converter 47
Shinichi Nomoto and Fumio Watanabe: Highly Contoured Beam Antennas for 21 GHz-Band LDR Hub Stations 59
Masao Tachikura: Theoretical Analysis of Optical Fiber Strength by Bending Test 73
Akihisa Nakajima, Koji Yamamoto, and Hiroshi Sawada: Automatic Pursuit Routing for Mobile Communications Network 81
Akio Satoh and Eiichi Ogawa: An Evaluation Method for the Reflection Coefficient of Building Walls 92
Shumji Fujii, Yukuo Hayashida, and Yoshikazu Tezuka: Performance of Integrated Voice/Data Multiplexing System with Controlled Arrival 103

NUMBER 4

Kiyoharu Aizawa, Hiroshi Harashima, and Takahiro Saito: A Model-Based Analysis/Synthesis Image Coding Scheme 1
Yukuo Hayashida, Nobuyuki Sugimachi, and Yoshinori Yoshida: Throughput Analysis of Tandem Go-Back-N ARQ Scheme 11
Miki Hirano and Naoya Watanabe: Characteristics of Multiplexed Burst Traffic in the ATM Switching System 19
Morishi Izumita, Seiichi Mita, Nobukazu Doi, and Hideki Imai: Error Pattern Analysis Decoding for Reed-Solomon Codes 29
Nobuyuki Sugimachi, Yukuo Hayashida, and Yoshinori Yoshida: Buffering Effect of Tandem Stop-and-Wait ARQ Scheme 38
Takashi Inoue, Hiroomi Hikawa, and Shinsaku Mori: Interference Suppression Using DPLL with Notch Frequency Characteristic 48
Yoshio Urabe and Norihiko Morinaga: Error Probability Analysis of PSK Satellite Communication System with a Nonlinear Transponder 57
Atsuhiro Nishikata and Yasutaka Shimizu: Analysis for $\lambda/4$-Type Wave Absorber by Resistive Cloth 66
Kotaro Nakamura and Tetsuo Nakamura: Helical Loaded Monopole Antenna 76
Takao Murata and Kenji Ohmaru: A Printed Antenna with Two-Layer Structure for Satellite Broadcast Reception 81
Akira Kondo, Takao Itanami, and Hidehiko Abe: Design of High-Gain S-Band Multibeam Antenna for ETS-VI 91
Yoshihiro Hase, Hiromitsu Wakana, Shinichi Taira, and Shingo Ohmori: Experiments of Aeronautical Satellite Communications Using ETS-V 99
Katsuya Endo, Makoto Natori, Makoto Ando, and Naohisa Goto: A Waveguide Design of a Radial Line Slot Antenna 109

NUMBER 5

Page

Naoki Inagaki: Null Synthesis Based on the Principle of Pattern Multiplication . 1
Takao Ogura and Shogo Kozaki: Electromagnetic Scattering by a Perfectly Conducting Rectangular Cylinder Located Near the Conducting Plane 12
Naohisa Komatsu and Hideyoshi Tominaga: A Proposal on Digital Watermark in Document Image Communication and Its Application to Realizing a Signature 22
Shinya Nogami: Performance Evaluation of Processing Element in a Data-Flow Control Scheme 34
Kiyoshi Tanaka, Yasuhiro Nakamura and Kineo Matsui: Duplex Modified-READ Coding Scheme for Facsimile Transmission of Documents 46
Haruo Akimaru, Hironori Katada and Takashi Okuda: An Optimum Design of Alternative Routing System with Trunk-Reservation Scheme 57
Kenji Ohta, Hiroyuki Eguchi and Masashi Hayakawa: Observation and Interpretation of Patched Structures in the Spectra of Low-Latitude Whistlers 63
Shuichi Tanaka, Shiro Nihei and Masashi Nagaoka: Near Field Monitoring System for the DSB D-VOR 73
Toshiaki Matsunaga, Kazunori Uchida and Takeaki Noda: Electromagnetic Wave Propagation in Two-Dimensional Impedance Tunnels with Modified Multicross-Junctions 81
Kazuo Morita, Osamu Kojima, Toshio Nakano and Toshimi Haida: Estimation Formula of VHF/UHF Band Field Strength for Mobile Communications in Suburban Area . . . 88
Tokuhiro Kitami: Synchronization Method Employing a Cyclic Redundancy Check in an Asynchronous Transport System 99
Jun Sasaki and Shigeru Suzuki: Influence of Pulse Interference for Fiber-Optic Star-Ring LAN Using Optical Accessors 110

NUMBER 6

Fu-Sheng Liu and Masayuki Tanimoto: Distortion in Analog Transmission of Subsampled Picture Signals 1
Yuuji Izawa and Masaaki Takizawa: Improvement of Picture Quality and Coding Efficiency Using Discrete Cosine Transform 12
Yutaka Ishibachi: Adaptive ARQ Scheme and Their Performance Evaluation under Full-Duplex Transmission 22
Yukuo Hayashida, Nobuyuki Sugimachi, and Yoshinori Yoshida: Delay Performances of Tandem Go-Back-N ARQ Scheme 33
Tomoki Ohsawa: Block Demodulation Method for PSK Signal by Sequential Regression Estimator 41
Naoya Sakurai and Ryozo Kishimoto: Mode Partition of High-Definition Television Signals Using Adaptive Subsampling 52
Toshiyuki Itoh, Iwao Sasase, and Shinsaku Mori: Coded Continuous Phase Modulation Combined with Nonuniform Mapping and Multi-h Scheme 63
Yasushi Fuwa and Yatsuka Nakamura: Diagnosing Hang-ups and Automatic Restoration for Nodes in Netwarks of Ring Topology 73
Mutsuhiko Nakao and Kazumi Yamashita: Comparative Study on DPLL's Based on Power Density Spectrum of Phase Error Sequences 85
Tsutomu Nakamura, Ryooichi Sasaki, Nobuyuki Fujikura, and Hiroshi Morita: Development and Performance Evaluation of Highly Efficient Retransmission Scheme for High-Speed Data Transfer via Satellite 99
Hiroshi Miyazawa and Hironobu Itoh: Development of a Location System for TV Ghost Sources and Its Serviceability 109

NUMBER 7

Susumu Itoh, Ichiroh Naitoh, Kouji Kishida, and Toshio Utsunomiya: An Adaptive Two-Stage Image Coding Scheme Using DPCM and Vector Quantization 1
Toshikane Oda, Hiroyuki Fukuoka, and Yu Watanabe: Comparison of Traffic Characteristics of GOS Control Methods of a Trunk Group Carrying Multislot Calls . 12
Akira Tanaka and Jun-ichi Mizusawa: Routing Algorithms of Multiple-Destination Telecommunication Services 23

Page

Jun Yamagata and Kenji Takemoto: Studies on Realization of Information Retrieval Service Function by Fiber Optic Broadband Distribution System 38
Noriki Miki and Norio Tamaki: A Structure of Multiband AGC Equalizer for Digital Subscriber Transmission 49
Yoshinori Sakai and Jing Su: Multimedia Burst-Type Multiplexing Based on Fuzzy Requirement 57
Shinsuke Hara and Norihiko Morinaga: Post-Detection Combining Diversity Improvement of Four-Phase DPSK System in Mobile Satellite Communications 68
Takuji Ikeda and Nagayoshi Morita: Heating of Deep-Seated Tumors by TE Wave Irradiation 76
Takahiro Sonoda and Shogo Kozaki: Reflection and Transmission of a Gaussian Beam from an Anisotropic Dielectric Slab 85
Ken Kawamata, Xinwei Yang, Akira Haga, and Risaburo Sato: Proposition of Observation System by Distributed Circuit for Fast Transients due to Discharge in Electric Contact 93
Koichi Sakai and Masanori Koshiba: Analysis of Electromagnetic Field Distribution in Tunnels with Partition Walls 101

NUMBER 8

Yoshiaki Tanaka, Kaoru Sezaki, and Minoru Akiyama: Tree Configuration of N:1 Multiconnection Nonblocking Switching Networks 1
Shuji Tasaka and Masaya Hirota: A Performance Comparison of Link Level Connection Schemes in CSMA/CD Networks 11
Atsushi Hiramatsu: A Self-Learning Control of ATM Service Quality Using Neural Network 24
Kouichi Mutsuura, Hiromi Okada, Yoshikazu Tezuka, and Kazuhiro Ohtuki: A New Access Scheme for Pure ALOHA Using Capture Effect by Time-Varying Power Control . 37
Xu Guonai and Sinsaku Mori: Phase-Locked Loop with a Binary Quantized Phase and Frequency Comparator 49
Osamu Nakajima, Hiroomi Hikawa, Takashi Inoue, and Shinsaku Mori: Performance Improvement of DPLL with Adaptive Binary Quantized Phase-Frequency Comparator . . 56
Masayuki Yanagiya and Haruhisa Takahashi: Diffusion Approximation for Queueing Systems with Nonexhaustive Cyclic Service 66
Xu Guonai and Shinsaku Mori: Novel Phase-Locked Loop with Digital Control Techniques 77
Chikato Fujiwara, Chikara Yasuda, and Takaaki Okumoto: Stability and Throughput Analysis for CSMA/CD System 83
Toshio Hosono: Electromagnetic Polarization and Its Expression 95
Hiroyuki Arai and Naohisa Goto: A Ring Cavity Antenna of Wide Beamwidth 108

NUMBER 9

Ryozo Kishimoto and Naoya Sakurai: Self-Routing Benes Network Distributively Controlled by Dynamic Load Balance 1
Takuro Sato, Manabu Kawabe, Toshio Kato, and Atsushi Fukasawa: Composition of Robust Error Control Scheme Using Adaptive Coding and Its Effect on Data Communication . 12
Hideo Wataya and Kohhei Ohtake: Crosstalk Noise and Signal-to-Noise Ratio Characteristics for Digital Symmetrical Pair Cable Transmission System in Synchronous Clock Operation 21
Hitoshi Obara and Yutaka Nakazawa: Optimum Design of a Pipelined Time Slot Interchanger with Time Slot Sequence Integrity 35
Masaharu Komatsu and Yukuo Hayashida: Performance Analysis of Improved Stutter Go-Back-N ARQ Scheme 48
Yutaka Yasuda, Masayoshi Ohashi, Fumiaki Sugaya, and Hideo Okinaka: Digital Signal Transmission Characteristics in Maritime Satellite Communications 58
Ken-ichi Konishi and Yoshiya Miyagaki: Error Rate Performance in High-Speed GMSK Transmission on Mobile Satellite Channel 68
Teruya Fujii and Sigeru Kozono: Received Signal Level Characteristics with Adaptive Transmitter Power Control in Mobile Communications 76

Page

Makito Nakajima and Seiichi Sampei: Performance of a Decision Feedback Equalizer under Frequency-Selective Fading in Land Mobile Communications 86
Takashi Nakamura, Hideki Fushimi, and Senji Yokokawa: V Dipole Antenna with Multiple Stub Loading 97
Junji Yamauchi, Shin'ichi Honma, Teruaki Honma, and Hisamatsu Nakano: Focusing Properties of Fresnel Zone-Plate and Its Application to a Helix Radiating a Circularly Polarized Wave 107

NUMBER 10

Tokuhiro Kitami: A Burst Error Tolerant Synchronization Method in an Asynchronous Transport System 1
Hitochi Obara: Design of a Multistage Self-Routing Switch with a Distributed Cell Sequence Control 14
Masayuki Murata, Hideo Miyahara, and Yuji Oie: Survey on Traffic Control in ATM Networks Based on Traffic Tjeory 28
Hideaki Arai, Masatoshi Kawarasaki, and Shinya Nogami: Analysis of Call Admission Control in the ATM Network 42
Jiro Katto and Yasuhiko Yasuda: Cell Loss Protection Using Hierarchical Coding in Video Packet Communication 52
Tamotsu Ninomiya, Tetsuro Tanaka, and Koosuke Harada: Design of a Nondissipative *LC* Snubber in a Forward Converter 63
Takashi Suga, Hirokimi Shirasaki, and Fujio Ishihara: Properties of Linearly Steep Tapered Cutoff Waveguide Filters 73
Hajime Murakami, Koichi Shimizu, Katsuyuki Yamamoto, Tomohisa Mikami, Nozomu Hoshimiya, and Kimio Kondo: Medical Data Transmission Using Mobile Satellite Communication 80
Kohsuke Shinnai, Tsutomu Nakamura, Michio Suzuki, Ryoichi Sasaki, Hiroaki Takahashi, and Akio Matsuura: Satellite and Terrestrial Link Switching Control Method Using High-Speed Time-Division Multiplexer . 90
Toshikazu Korekado and Kiyoshi Okuno: Design of Two-Stacked Circular Loop Yagi-Uda Array Antenna 102

NUMBER 11

Minoru Akiyama and Yasuo Ichiya: Traffic Analysis of an Integrated Voice/Data System by Means of Pseudo-Data Call Concept 1
Haruhisa Takahashi and Li-sheng Wang: An Approximate Analysis of a Queueing System with Markov-Modulated Arrivals 12
Yoshikazu Chiba, Kazuhiro Hiraide, and Fumio Kondo: High-Speed Broadband Circuit Switching System Architecture 22
Hiroshi Kobayashi and Hideaki Haruyama: Voice, Data and Video Integrated Broadband Metropolitan Area Network 34
Kaoru Sezaki, Yoshiaki Tanaka, and Minoru Akiyama: A Noncongestion Self-Routing Control Algorithm of Generalized Benes Network 43
Satoru Okamoto and Hitoshi Obara: ATM Cross-Connect Switch Using Folded Banyan Switching Network with Bypass Links 50
Haruo Kitamura: A Study on Shared Buffer-Type ATM Switch 58
Nobuyuki Sugimachi, Yukuo Hayashida, and Yoshinori Yoshida: Delay Performances of Tandem Stop-and-Wait ARQ Scheme 65
Wen-Jian Gu and Koosuke Harada: Small-Signal Dynamic Analysis of Class E Resonant DC-DC Converter Regulated by an Auxiliary Switch 73
Yoshihisa Irimajiri, Toshiaki Takano, and Munetoshi Tokumaru: Frequency Selective Surfaces for Radio Astronomy-Characteristics of 40/80-GHz FSS 85
Misao Haneishi, Akinori Matsui, Masao Nakayama, and Sakuyoshi Saito: Triplate-Type Planar Antenna and Its Array 93
Yukio Kamata, Mituru Ichikawa, and Tomonao Hayashi: A Rocket-Borne Antenna Consisting of a Monopole and a Major Angle Corner Reflector 101

NUMBER 12

Page

Masatoshi Umeda, Masashi Murata, and Norihiko Morinaga: Trellis Coding with Improved Bit Error Performance 1
Shizuo Nakano and Naofumi Nagai: Design and Electrical Characteristic Evaluation for Interface Circuit in ISDN Bus Wiring System 9
Hiroshi Kubo and Ikuo Iizuka: An Adaptive Phase-Control Digital PLL 21
Michihiro Ishizaka and Toshihiro Shikama: A Token-Passing Scheme in a Time-Division Multiplexed Local Area Network and Its Performance Evaluation 32
Yoichi Kato, Sakae Okubo, and Yutaka Suzuki: A Study on Hybrid Motion Video Coding Schemes—Block Size, Comparision of DCT and VQ Schemes, Loop Filter 45
Mikio Takahara and Kenta Noda: Jitter Characteristics of an Optical Repeater Module Using DPLL 55
Hitoshi Asano and Takao Masuda: High-Performance Unidirectional Bus LAN in the Case of Large-Sized Network 65
Yutaka Takahashi, Eiichi Bamba, and Kazuhiro Kinemura: A Numerical Method to Evaluate Frequency Modulation/Demodulation Limit of Phase-Locked Loop 76
Koichi Munemura and Haruo Ogiwara: Optimum Adaptive Equalization of Selective Fading Channel Based on Time-Varying Channel Model 85
Yoshiya Miyagaki: Error Rate Analysis in MDPSK and MCPSK with a Pilot on Satellite-Aircraft Multipath Channel 96